Docket No. 2328-050A

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PATENT

THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	
Inventors: Jian J. CHEN et al.	:
	:
U.S. Patent Application No. 10/647,347	: Group Art Unit: 1763
:	
Filed: March 12, 2007	: Examiner: Luz L. ALEJANDRO MULERO
:	
For: INDUCTIVE PLASMA PROCESSOR METHOD	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attn: BOARD OF PATENT APPEALS AND INTERFERENCES

BRIEF ON APPEAL

Further to the Notification of Non-Compliant Appeal Brief dated July 19, 2007, regarding the Brief on Appeal filed April 2, 2007, Appellants re-submit herewith their Brief on Appeal with the correct serial number inserted on pages 2-91. The $500 statutory fee was paid on April 2, 2007.

To the extent necessary, Appellant hereby requests any required extension of time under 37 C.F.R. §1.136 and hereby authorizes the Commissioner to charge any required fees not otherwise provided for to Deposit Account No. 07-1337.

CERTIFICATION OF FACSIMILE TRANSMISSION
I HEREBY CERTIFY THAT THIS PAPER IS BEING FACSIMILE TRANSMITTED TO THE PATENT AND TRADEMARK OFFICE ON THE DATE SHOWN BELOW

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I. Real Party in Interest

The real party in interest is Lam Research Corporation.

II. Related Appeals and Interferences

There are no pending related appeals and/or interferences; the parent application, serial number 09/821,027, was involved in Appeal 2005-1046.

III. Status of Claims

A. Total Number of Claims in Application

1. **There are 10 claims pending in the application, which are identified as claims 32-41.**

B. Status of all the claims

1. **Claims canceled: 1-31, many of which were prosecuted in the parent application, now US patent 7,096,819.**
2. **Claims withdrawn from consideration but not canceled: none.**
3. **Claims pending: 32-41.**
4. **Claims allowed: none.**
5. **Claims rejected: 32-41.**

C. Claims on Appeal

1. **Claims on appeal: claims 32-41.**

IV. Status of Amendments

The amendment after Final Rejection was entered.

PAGE 7/91 * RCVD AT 8/17/2007 1:41:04 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/7 * DNIS:2738300 * CSID:7035185499 * DURATION (mm-ss):21-10

V. Summary of Claimed Subject Matter

Claim 32 is concerned with a method of manufacturing many different inductive plasma processors of the same type (title, page 32, lines 15, 22, 23) wherein each of the processors includes a plasma excitation coil having plural electrically connected windings 40, 42; (page 16, line 5; page 32, lines 15, 16; fig. 2). Each of the windings 40, 42 has a pair of excitation terminals, so that winding 40 includes terminals 46, 48 and winding 42 includes terminals 50,52 (page 16, lines 9-11). The windings 40, 42 of the coil of each processor are adapted to be driven by excitation source arrangement 26 so that different currents simultaneously flow through the pair of excitation terminals 46, 48, 50 and 52 of windings 40, 42 (page 16, lines 6-8). The windings 40, 42 of each coil 24 of each processor are arranged so exterior winding 40 is about interior winding 42 (page 16, lines 8, 9). The exterior winding 40 and the interior winding 42 are about coil axis 44 (page 16, lines 5, 6).

The different processors of the same type have differing electric field and plasma density distributions from processor to processor (page 32, lines 22- page 33, line 1). For each of the inductive plasma processors, the method comprises moving the position of the exterior and interior windings 40, 42 relative to each other and axis 44 so the plasma density incident on a workpiece 32 (page 15, line 28) in a chamber 10 (Fig. 1, page 12, lines 12, 13) of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor (page 32, lines 15-18; page 32, lines 22 – page 33, line 3).

Claim 33 depends on claim 32 and indicates the different processors of the same type have differing azimuthal electric field distributions (page 32, lines 22, 23). In this case, movement of the exterior and interior windings 40, 42 relative to each other includes turning the windings 40, 42 relative to each other and axis 44 until the tests indicate the different processors of the same type have the optimum uniform plasma distribution (page 32, line 22 – page 33, line 3; page 32, line 17).

Dependent claim 34 requires the method of claim 33 to be performed on coils of a processor having windings 40, 42 electrically connected in parallel (page 17, line 6).

Claim 35 indicates the tests of claim 32 are conducted by simultaneously supplying electric current to the excitation terminals 46, 48, 50, 52 windings 40, 42 of the coil of a particular processor (page 17, lines 6, 7, lines 18-20).

Independent claim 36 defines a method of controlling the plasma flux distribution on a workpiece 32 of an inductive plasma processor (title) including a plasma excitation coil 24 having plural electrically connected windings 40, 42. Each of the windings has a pair of excitation terminals so winding 40 includes terminals 46, 48 and winding 42 includes terminals 50, 52. Windings 40, 42 are adapted to be driven by an excitation source arrangement including RF source 26 so that different currents simultaneously flow though the excitation terminals 46, 48, and 50, 52 windings 40 and 42 respectively of a coil 32 (page 16, lines 6-8) of a particular processor (page 16, lines 6-8). The exterior and interior windings 40, 42 are about axis 44 of the coil (page 16, lines 5, 6).

The method is performed on several (i.e., three or more) different processors of the same type having different azimuthal electric field and plasma density distribution from processor to processor (page 32, line 15, page 32, line 22 – page 33, line 1). The method comprises changing the relative angular position between the exterior and interior windings 40, 42 of the coil so the plasma density distribution incident on workpiece 24 has a predetermined desired relationship (page 32, lines 22 – page 33, lines 3). The angular position changing step includes turning the exterior and interior windings 40, 42 of the coil relative to each other about axis 44 (page 32, lines 15 – 18). The exterior and interior windings 40, 42 are turned relative to each other to assist in controlling azimuthal electric field distribution and plasma density distribution of the processor (page 32, lines 13-28). The exterior and interior windings 40, 42 of each particular processor are turned relative to each other until tests indicate optimum uniform plasma distribution is achieved in each processor (page 33, lines 1-3).

Claim 37, that depends on claim 36, adds the same limitations to claim 36 that claim 34 adds to claim 32.

Claim 38, that depends on claim 36, adds the same limitations to claim 35 that claim 35 adds to claim 32.

Independent claim 39 is similar to independent claim 36. The method is performed on several (i.e., three or more) different processors of the same type having different azimuthal electric field and plasma density distribution from processor to processor (page 32, line 15, page 32, line 22 – page 33, line 1). Claim 39 states the relative position between the exterior and interior windings (40, 42) of the coil is

changed so the plasma density incident on workpiece 24 has a predetermined desired relationship (page 32, line 22 – page 33, line 3). The position changing step includes moving the exterior and interior windings 40, 42 of the coil relative to each (page 32, lines 15-17). The exterior and interior windings 40, 42 are moved relative to each other to assist in controlling electric field distribution and plasma density distribution of the processor (page 32, lines 15-22). The exterior and interior windings 40, 42 of each particular processor are moved relative to each other until test indicate optimum uniform plasma distribution is achieved in each processor (page 32, line 22 – page 33, line 3).

Claim 40, that depends on claim 39, adds the same limitations to claim 39 that claim 34 adds to claim 32.

Claim 41, that depends on claim 39, adds the same limitations to claim 39 that claim 35 adds to claim 32.

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VI. Grounds of Rejection to be Reviewed on Appeal

A. The rejection of claims 32-41 under 35 U.S.C. 103(a) as being unpatentable over Ishii et al., U.S. Patent 5,795,429 in view of Yoshida et al., U.S. Patent 5,690,781 and Savas, U.S. Patent 5,983,828 is wrong.

B. The rejection of claims 32-41 under 35 U.S.C. 103(a) as being unpatentable over Ishii et al., U.S. Patent 5,795,429 in view of Ni et al., WO 00/58993 and Savas, U.S. Patent 5,983,828 is wrong.

C. The rejection of claims 32-41 under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent 6,164,241 in view of Yoshida et al., U.S. Patent 5,690,781 and Savas, U.S. Patent 5,983,828 is wrong.

D. The rejection of claims 32-41 under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent 6,164,241 in view of Ni et al, WO 00/58993 and Savas, U.S. Patent 5,983,828 is wrong.

E. The rejection of claims 32-41 under 35 U.S.C. 103(a) as being unpatentable over Lee et al., U.S. Patent 6,288,493 in view of Yoshida et al., U.S. Patent 5,690,781 and Savas, U.S. Patent 5,983,828 is wrong.

F. The rejection of claims 32-41 under 35 U.S.C. 103(a) as being unpatentable over Lee et al., U.S. Patent 6,288,493 in view of Ni et al., WO 00/58993 and Savas, U.S. Patent 5,983,828 is wrong.

VII. Argument

A. The Problem Solved By The Claimed Method

Plasma processors of the same type typically have differing electric field and plasma density distributions from processor to processor. This is because of anomalies from processor to processor. The anomalies can be due to various reasons, such as variations in the (1) components of the processors, at the time of processor fabrication and assembly, and/or (2) operating conditions in different environments having differing ambient magnetic fields that affect the magnetic fields of processors having coils that produce magnetic and electric fields. Typical prior art

plasma processors having coils were not well equipped to handle this problem. The typical prior art coils were manufactured on a prescribed basis, having a fixed geometry that was not subject to change while the coil was manufactured and/or installed in the processor.

The prior art relied on by the Examiner fails to consider this problem. It is also not concerned with a method of manufacturing many different plasma processors, as independent claim 32 requires or a method that is performed on several (i.e. three or more) processors of the same types having differing electric field and plasma distributions from processor to processor as claims 36 and 39 require.

B. The three different primary references

1. Ishii et al., USP 5,795,429

Figure 9 of Ishii et al., the figure relied upon by the Examiner in the Final Rejection, discloses the structure of a plasma processor having a coil including two spiral windings or antennae 24A and 24B, connected to be responsive to two different AC sources 28A and 28B, respectively. Winding 24A is concentric with winding 24B, and surrounds winding 24B. Ishii et al. has no disclosure of windings 24A and 24B being moved relative to each other, no less being moved until tests indicate optimum uniform plasma distribution is achieved in each of many or several processors, as independent claims 32 and 39 require. Further, there is no disclosure in Ishii et al of the requirement of claims 33 and 36 for winding 24A to be turned relative to winding 24B, no less being turned to assist in controlling azimuthal electric field distribution and azimuthal plasma density distribution of the processor. Ishii et al. also has no

disclosure of the requirement of claim 36 for the method to be performed on several different processors of the same type having differing azimuthal electric field and plasma density distributions from processor to processor, such that the exterior and interior windings of each particular processor are turned relative to each other until tests indicate optimum uniform plasma distribution is achieved in each processor. There is no reason to assume that (1) windings 24A and 24B of Ishii et al. are anything but fixed, and (2) the windings of all the processors that might be made in accordance with the Ishii et al. disclosure are anything but the same relative to each other.

2. Chen et al., USP 6,164,241

Chen et al., commonly assigned and co-invented by the inventors of the present application, is relied on by the Examiner for the disclosure in Figure 6. Figure 6 discloses coil 1 and coil 2, which are concentric with each other and are connected in parallel to an RF source. Each of coils 1 and 2 has an input excitation terminal connected to the RF source by a separate capacitor, such that coil 1 and coil 2 are respectively connected to the RF source by capacitors C_1 and C_2. Each of the coils is also connected to ground by a capacitor, so that a terminal of coil 1 opposite from the coil connected to capacitor C_1 is connected to ground by capacitor C_3 and the terminal of coil 2 opposite from the terminal connected to capacitor C_2 is connected to ground by capacitor C_4.

The description of Figure 6, at column 9, lines 23-column 10, line 15, indicates the values of capacitors C_1-C_4 can be adjusted to adjust the current distribution in the coils. In addition, this portion of the Chen et al. reference indicates it is possible to

reverse the angular position of coil 1 relative to coil 2 by providing a configuration where the openings are aligned. However, the Chen et al. patent indicates that such alignment is undesirable, that is, not optimum, because it results in lower power coupling.

Chen et al. has no disclosure of coils 1 and 2 being moved relative to each other until tests indicate optimum uniform plasma distribution is achieved in each of many or several processors, as independent claims 32 and 39 require. Chen et al. has no disclosure of the requirement of claim 36 for the method to be performed on several different processors of the same type having differing azimuthal electric field and plasma density distributions from processor to processor, such that the exterior and interior windings of each particular processor are turned relative to each other until tests indicate optimum uniform plasma distribution is achieved in each processor. There is no reason to assume that (1) coils 1 and 2 of Chen et al. are anything but fixed and (2) coils of all the processors that might be made in accordance with the Chen et al. disclosure are anything but the same relative to each other.

3. Lee et al., U.S.P. 6,288,493

The examiner relies on Figure 3B of Lee et al. in the description thereof. Figure 3B of Lee et al. discloses an antenna device for generating a plasma. The device has three antennas 310a, 310b and 310c electrically connected in parallel with each other to be driven by higher frequency source 102'.

Lee et al. has no disclosure of antennas 310a, 310b, or 310c being moved relative to each other, no less being moved until tests indicate optimum uniform

plasma distribution is achieved in each of many or several processors, as independent claims 32 and 39 require. Further, there is no disclosure in Lee et al. of the requirement of claims 33 and 36 for any of antennas 103a, 103b and/or 103c being turned relative to each other, no less being turned to assist in controlling azimuthal electric field distribution and azimuthal plasma density distribution of the processor. Lee et al. also has no disclosure of the requirement of claim 36 for the method to be performed on several different processors of the same type having differing azimuthal electric field and plasma density distributions from processor to processor, such that the exterior and interior windings of each particular processor are turned relative in each processor. There is no reason to assume (1) that antennas 103a, 103b, or 103c of Lee et al. are anything but fixed, and (2) that the windings of all the processors that might be made in accordance with the Lee et al. disclosure are anything but the same relative to each other.

C. The secondary and tertiary references

1. Savas, USP 5,983,828

Savas discloses a single inductively coupled plasma reactor system 100 including two side-by-side generation chambers 102a and 102b for enabling two substrates 107a and 107b to be simultaneously etched to double throughput rate; column 6, lines 15-30. Chambers 102a and 102b share gas supply system 104, exhaust system 106 and substrate processing chamber 108; see column 6, lines 8-30. Workpiece 107a is beneath a plasma source excited by cylindrical coil 124a, in turn responsive to source 150a. Workpiece 107b is excited by a plasma resulting from excitation by cylindrical coil 124b, in turn responsive to source 150b. Substrates 107a

and 107b are located on a common holder 112, connected to source 152. Savas does not disclose the requirement of claim 32 for a method of manufacturing many different inductive plasma processors as claim 32 or a method that is performed on several (three or more) processors until tests indicate optimum uniform plasma distribution is achieved in each processor, as claims 36 and 39 require and, like the primary references, is not concerned with solving the problems set forth in Section VII.A of this Brief.

2. Yoshida et al., USP 5,690,781

Yoshida et al. discloses a plasma processor including reaction chamber 1 for etching wafer 7. The plasma is generated by an RF magnetic field produced by spiral coil 2 that is not axial symmetrical about the center of wafer 7 and has a single winding; column 3, line 63 – column 4, line 14 and Figure 6b. Figures 6a and 6b and the description thereof, at column 5, lines 7-23, indicate the entire spiral coil 2 is translated radially of chamber 1, causing the coil to be located at an optimum location so the axial asymmetric coil has its center of gravity matched with the axial center of the reaction chamber. Hence, coil 2 is moved radially because it is not axially symmetric; not because of anomalies from coil to coil. Obviously, Yoshida et al. fails to disclose moving interior and exterior windings of a coil relative to each other.

The Yoshida et al. description, at column 5, lines 29-35, of the axially symmetric coils of Figures 8a and 8b actually teach away from moving the windings of a coil having axial symmetry. The implication from column 5, lines 29-35 is that the axially

symmetric coils of Figures 8a and 8b obviate the need to move the coil radially, as in the axial asymmetric "third embodiment" of Figs. 6a and 6b.

3. Ni, et al., WO 00/58993

Ni et al. discloses a coil having a single winding 216 including plural electrically conducting turns 221-224 that motors 201-203 move up and down by differing amounts relative to window 46. Motors 201-203 respond to signals that are for different processing recipes for different workpieces in chamber 40; page 15, lines 12-27. Motors 201-203 are not used in conjunction with tests conducted on processors to indicate optimum uniform plasma distribution is achieved in each of many or several different processors. Ni et al. does not disclose a coil wherein interior and exterior windings are moved or turned relative to each other.

D. The rejection of claims 32-41 under 35 U.S.C. 103(a) as being unpatentable over Ishii et al., U.S. Patent 5,795,429 in view of Yoshida et al., U.S. Patent 5,690,781 and Savas, U.S. Patent 5,983,828 is wrong.

1. The rejection of independent claim 32 based on Ishii et al., Yoshida et al., and Savas is wrong.

The allegation in the Office Action that Ishii et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 32 for a method of manufacturing many different plasma processors of the same type. There is no disclosure in Ishii et al. of manufacturing a single inductive plasma processor, no less many different inductive plasma processors of the same type, as claim 32 requires. Ishii et al. is only concerned with the structure of a single plasma processor. There is nothing in the Ishii

et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with manufacturing many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 9 and the description thereof of Ishii et al. to disclose the step of positioning the exterior winding of Ishii et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 32 because claim 32 requires the exterior and interior windings of the coil to be moved relative to each other and to the coil axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Consideration of Figure 9 and the description thereof of Ishii et al. provides no disclosure of moving interior and exterior windings 24A and 24B relative to each other and the coil axis, no less movement of the two windings relative to each other and the axis to achieve the result set forth in claim 32. Because Ishii et al. is not concerned with the method defined in the preamble of claim 32, and does not disclose moving an interior winding relative to an exterior winding or vice versa, the rejection of claim 32 fails, for these reasons alone.

The proposed combination of Ishii et al., Yoshida et al., and Savas to meet the terms of claim 32 is incorrect because neither Yoshida et al., nor Savas is concerned with a method of manufacturing many different plasma processors. Both references are only concerned with the structure and operation of a plasma processor in the field.

Consequently, there is no teaching in any of the three references of a method of manufacturing many different plasma processors of the same type, as claim 32 requires.

In addition, Yoshida et al. does not disclose subject matter that is relevant to claim 32. The Office Action relies on Figures 6A and 6B and the description thereof in Yoshida et al. to disclose moving a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 32 does not the say the coil is moved, but requires the exterior and interior windings to be moved relative to each other and to the coil axis. Consequently, the comments in the office action about coil movement in Yoshida et al are not germane to the movement claim 32 defines. In fact, Yoshida et al. can not disclose moving exterior and interior windings of coil 2 relative to each other and to the coil axis because coil 2 has only one winding.

One of ordinary skill in the art who thought Figures 6A and 6B of Yoshida et al. might be relevant to Ishii et al. would have translated the entire Ishii et al. coil including both windings 24A and 24B. There is no basis to conclude such a person would have looked to Yoshida to move windings 24A and 24B of Ishii et al. relative to each other. After reading the Yoshida et al. comment about axial symmetrically at column 5, lines 29 – 34, such a person would even had have second thoughts about moving the Ishii coil of Figure 9 at all because the coil of Figure 9 is axially symmetric. Yoshida implies translating an axial symmetric coil is not necessary.

Yoshida et al. is also irrelevant to claim 32 because Yoshida et al. is concerned with moving the coil of a single plasma processor, apparently while the processor is

being used in the field. In contrast, Appellants' claim 32 is concerned with a method of manufacturing many different plasma processors.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 32. Claim 32 is directed to a method of manufacturing many different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 32 based on Ishii et al., Yoshida et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 32. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 32.

2. The rejection of claim 33 based on Ishii et al., Yoshida et al., and Savas is incorrect.

Claim 33 requires the exterior and interior windings of claim 32 to be turned relative to each other and the coil axis. The rejection based on Ishii et al., Yoshida et al., and Savas admits Ishii et al. fails to disclose the turning feature, but does not indicate where the feature is found in either Yoshida et al. or Savas. Hence, no

attempt to establish a prima facie case of obviousness vis a vis claim 33 has been made. Indeed, none of the three references disclose the turning of claim 33.

3. The rejection of independent claim 36 based on Ishii et al., Yoshida et al., and Savas is wrong.

The allegation in the Office Action that Ishii et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 36 for a method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor, wherein the method is performed on several different plasma processors of the same type, and having different azimuthal electric field and plasma density distributions from processor to processor. There is no disclosure in Ishii et al. of such a control method. Ishii et al. is only concerned with the structure of a single plasma processor and is not related to control of several (that is, three or more) different inductive plasma processors of the same type, as claim 36 requires. There is nothing in the Ishii et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 9 and the description thereof of Ishii et al. to disclose the step of positioning the exterior winding of Ishii et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 36 because claim 36 requires the exterior and interior windings of the coil to be turned relative to each other about an axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests

conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Claim 36 indicates the turning assists in controlling azimuthal electric field distribution and plasma density distribution of the processor. Consideration of Figure 9 and the description thereof of Ishii et al. provides no disclosure of moving interior and exterior windings 24A and 24B relative to each other and the coil axis, no less turning of the two windings relative to each other and an axis to achieve the results set forth in claim 36. Because Ishii et al. is not concerned with a method that is performed on several processors of the same type to control plasma flux distribution on workpieces in the several processors and does not disclose moving, no less turning, an interior winding relative to an exterior winding or vice versa, Ishii et al. does not disclose the invention substantially as claimed in claim 36 and the rejection of claim 36 fails for these reasons alone.

The rejection based on Ishii et al., Yoshida et al., and Savas admits Ishii et al. fails to disclose the turning feature, but does not indicate where the feature is found in either Yoshida et al. or Savas. Hence, no attempt to establish a prima facie case of obviousness vis a vis claim 36 has been made. Indeed, none of the three references disclose the turning of claim 36.

The proposed combination of Ishii et al., Yoshida et al., and Savas to meet the terms of claim 36 is incorrect because neither Yoshida et al., nor Savas is concerned with a method of controlling plasma flux distribution on workpieces on several different plasma processors of the same type. Both references are only concerned with the structure and operation of a plasma processor.

In addition, Yoshida et al. does not disclose subject matter that is relevant to claim 36. The Office Action relies on Figures 6A and 6B and the description thereof in Yoshida et al. to disclose moving a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 36 does not the say the coil is moved, but requires the exterior and interior windings to be turned relative to each other and to an axis. Consequently, the comments in the office action about coil movement in Yoshida et al are not germane to the movement claim 36 defines. In fact, Yoshida et al. can not disclose turning exterior and interior windings of coil 2 relative to each other and to an axis because coil 2 has only one winding.

One of ordinary skill in the art who thought Figures 6A and 6B of Yoshida et al. might be relevant to Ishii et al. would have translated the entire Ishii et al. coil including both windings 24A and 24B. There is no basis to conclude such a person would have looked to Yoshida to turn windings 24A and 24B of Ishii et al. relative to each other. After reading the Yoshida et al. comment about axial symmetrically at column 5, lines 29 – 34, such a person would even had have second thoughts about moving the Ishii coil of Figure 9 at all because the coil of Figure 9 is axially symmetric. Yoshida implies translating an axial symmetric coil is not necessary.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 36. Claim 36 is directed to a method that is performed on several different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers

102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 36 based on Ishii et al., Yoshida et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 36. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 36.

4. The rejection of independent claim 39 based on Ishii et al., Yoshida et al., and Savas is wrong.

The allegation in the Office Action that Ishil et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 39 for a method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor, wherein the method is performed on several different plasma processors of the same type, and having different azimuthal electric field and plasma density distributions from processor to processor. There is no disclosure in Ishii et al. of such a control method. Ishii et al. is only concerned with the structure of a single plasma processor and is not related to control of several (that is, three or more) different inductive plasma processors of the same type, as claim 39 requires. There is nothing in the Ishii et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 9 and the description thereof of Ishii et al. to disclose the step of positioning the exterior winding of Ishii et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 39 because claim 39 requires the exterior and interior windings of the coil to be moved relative to each other about an axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Claim 39 indicates the moving assists in controlling electric field distribution and plasma density distribution of the processor. Consideration of Figure 9 and the description thereof of Ishii et al. provides no disclosure of moving interior and exterior windings 24A and 24B relative to each other and the coil axis, no less moving of the two windings relative to each other and an axis to achieve the results set forth in claim 39. Because Ishii et al. is not concerned with a method that is performed on several processors of the same type to control plasma flux distribution on workpieces in the several processors and does not disclose moving, no less turning, an interior winding relative to an exterior winding or vice versa, Ishii et al. does not disclose the invention substantially as claimed in claim 39 and the rejection of claim 39 fails for these reasons alone.

The proposed combination of Ishii et al., Yoshida et al., and Savas to meet the terms of claim 39 is incorrect because neither Yoshida et al., nor Savas is concerned with a method of controlling plasma flux distribution on workpieces on several different

plasma processors of the same type. Both references are only concerned with the structure and operation of a plasma processor.

In addition, Yoshida et al. does not disclose subject matter that is relevant to claim 39. The Office Action relies on Figures 6A and 6B and the description thereof in Yoshida et al. to disclose moving a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 39 does not the say the coil is moved, but requires the exterior and interior windings to be moved relative to each other and to an axis. Consequently, the comments in the office action about coil movement in Yoshida et al are not germane to the movement claim 39 defines. In fact, Yoshida et al. can not disclose moving exterior and interior windings of coil 2 relative to each other and to an axis because coil 2 has only one winding.

One of ordinary skill in the art who thought Figures 6A and 6B of Yoshida et al. might be relevant to Ishii et al. would have translated the entire Ishii et al. coil including both windings 24A and 24B. There is no basis to conclude such a person would have looked to Yoshida to turn windings 24A and 24B of Ishii et al. relative to each other. After reading the Yoshida et al. comment about axial symmetrically at column 5, lines 29 – 34, such a person would even had have second thoughts about moving the Ishii coil of Figure 9 at all because the coil of Figure 9 is axially symmetric. Yoshida implies translating an axial symmetric coil is not necessary.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 39. Claim 39 is directed to a method that is

performed on several different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 39 based on Ishii et al., Yoshida et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 39. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 39.

5. The rejections of claims 34, 37 and 40 based on Ishii et al., Yoshida et al., and Savas are incorrect.

Claims 34, 37 and 40 require the interior and exterior windings to be connected in parallel with each other. The Final Rejection relies on Ishii et al. to disclose this feature. In fact, the exterior and interior windings 24A and 24B of Fig. 9 of Ishii et al. are not connected in parallel because they are connected to different RF power sources.

6. The rejections of claims 35, 38 and 41 based on Ishii et al., Yoshida et al., and Savas are incorrect.

Claims 35, 38 and 41 require the tests to be conducted by simultaneously supplying electric currents to the excitation terminals of the exterior and interior windings of the coil of a particular processor of claim 32. Yoshida et al. is relied on for

testing the processor of Figure 6A that includes coil 2 of Figure 6B. However coil 2 of Figure 6B has a single winding. Yoshida et al can not test by simultaneously applying current to a coil having exterior and interior windings because coil 2 has only one winding, a feature precluding applying current to interior and exterior windings of a coil.

E. The rejection of claims 32-41 under 35 U.S.C. 103(a) as being unpatentable over Ishii et al., U.S. Patent 5,795,429 in view of Ni et al., WO 00/58993 and Savas, U.S. Patent 5,983,828 is wrong.

This rejection is, to a large extent, cumulative to the rejection of claims 32-41 based on Ishii et al., Yoshida et al. and Savas, except that Ni et al. replaces Yoshida et al. In this regard, the wording of the rejection based on Ishii et al., Ni et al. and Savas is identical to the wording of the rejection based on Ishii et al., Yoshida et al. and Savas, except that "Yoshida et al." has been replaced in each instance by Ni et al. and there are references to specific portions of Ni et al. that differ from the specific portions of Yoshida et al. that are referenced.

Ni et al., however, is less relevant than Yoshida et al. because the movement of the single winding of the Ni et al. coil is on a preprogrammed basis in response to recipes stored in memory, rather than in response to testing. However, because of the requirements of the Rules of Practice concerning the contents of appellant's briefs and the way they are being enforced, appellants feel compelled to provide separate arguments for each of claims 32-41 vis-à-vis this rejection, even though the arguments, except for the above point, are quite redundant to the arguments set forth in Section VII.F of this Brief.

1. The rejection of independent claim 32 based on Ishii et al., Ni et al., and Savas is wrong.

The allegation in the Office Action that Ishii et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 32 for a method of manufacturing many different plasma processors of the same type. There is no disclosure in Ishii et al. of manufacturing a single inductive plasma processor, no less many different inductive plasma processors of the same type, as claim 32 requires. Ishii et al. is only concerned with the structure of a single plasma processor. There is nothing in the Ishii et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with manufacturing many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 9 and the description thereof of Ishii et al. to disclose the step of positioning the exterior winding of Ishii et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 32 because claim 32 requires the exterior and interior windings of the coil to be moved relative to each other and to the coil axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Consideration of Figure 9 and the description thereof of Ishii et al. provides no disclosure of moving interior and exterior windings 24A and 24B relative to each other and the coil axis, no less movement of the two windings

relative to each other and the axis to achieve the result set forth in claim 32. Because Ishii et al. is not concerned with the method defined in the preamble of claim 32, and does not disclose moving an interior winding relative to an exterior winding or vice versa, the rejection of claim 32 fails, for these reasons alone.

The proposed combination of Ishii et al., Ni et al., and Savas to meet the terms of claim 32 is incorrect because neither Ni et al., nor Savas is concerned with a method of manufacturing many different plasma processors. Both references are only concerned with the structure and operation of a plasma processor in the field. Consequently, there is no teaching in any of the three references of a method of manufacturing many different plasma processors of the same type, as claim 32 requires.

In addition, Ni et al. does not disclose subject matter that is relevant to claim 32. The Office Action relies on Figures 1 and 2 and the description thereof in Ni et al. to disclose moving different positions or changing the relative angular position of a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 32 does not the say the coil is moved to different positions or that the relative angular position of a coil is changed, but requires the exterior and interior windings of a coil to be moved relative to each other and to the coil axis. The movement is until tests indicate optimum uniform plasma distribution is achieved in each processor. None of the three references applied against claim 32 remotely discloses testing of any type, no less testing as defined in claim 32. Consequently, the comments in the office action about moving different positions or changing the relative angular position

of a coil in Ni et al are not germane to the movement claim 32 defines. In fact, Ni et al. can not disclose moving exterior and interior windings of the coil including single winding 216 relative to each other and to the coil axis because the coil has only one winding having plural turns.

Ni et al. is also irrelevant to claim 32 because Ni et al. is concerned with moving the coil of a single plasma processor, while the processor is being used in the field in connection with different recipes for applying different types of plasmas to workpieces. In contrast, Appellants' claim 32 is concerned with a method of manufacturing many different plasma processors.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 32. Claim 32 is directed to a method of manufacturing many different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 32 based on Ishii et al., Ni et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 32. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 32.

2. The rejection of claim 33 based on Ishii et al., Ni et al., and Savas is incorrect.

Claim 33 requires the exterior and interior windings of claim 32 to be turned relative to each other and the coil axis. The rejection based on Ishii et al., Ni et al., and Savas admits Ishii et al. fails to disclose the turning feature, but does not indicate where the feature is found in either Ni et al. or Savas. Hence, no attempt to establish a prima facie case of obviousness vis a vis claim 33 has been made. Indeed, none of the three references disclose the turning of claim 33.

3. The rejection of independent claim 36 based on Ishii et al., Ni et al., and Savas is wrong.

The allegation in the Office Action that Ishii et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 36 for a method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor, wherein the method is performed on several different plasma processors of the same type, and having different azimuthal electric field and plasma density distributions from processor to processor. There is no disclosure in Ishii et al. of such a control method. Ishii et al. is only concerned with the structure of a single plasma processor and is not related to control of several (that is, three or more) different inductive plasma processors of the same type, as claim 36 requires. There is nothing in the Ishii et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 9 and the description thereof of Ishii et al. to disclose the step of positioning the exterior winding of Ishii et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 36 because claim 36 requires the exterior and interior windings of the coil to be turned relative to each other about an axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Claim 36 indicates the turning assists in controlling azimuthal electric field distribution and plasma density distribution of the processor. Consideration of Figure 9 and the description thereof of Ishii et al. provides no disclosure of moving interior and exterior windings 24A and 24B relative to each other and the coil axis, no less turning of the two windings relative to each other and an axis to achieve the results set forth in claim 36. Because Ishii et al. is not concerned with a method that is performed on several processors of the same type to control plasma flux distribution on workpieces in the several processors and does not disclose moving, no less turning, an interior winding relative to an exterior winding or vice versa, Ishii et al. does not disclose the invention substantially as claimed in claim 36 and the rejection of claim 36 fails for these reasons alone.

The rejection based on Ishii et al., Ni et al., and Savas admits Ishii et al. fails to disclose the turning feature, but does not indicate where the feature is found in either Ni et al. or Savas. Hence, no attempt to establish a prima facie case of obviousness

vis a vis claim 36 has been made. Indeed, none of the three references disclose the turning of claim 36.

The proposed combination of Ishii et al., Ni et al., and Savas to meet the terms of claim 36 is incorrect because neither Ni et al., nor Savas is concerned with a method of controlling plasma flux distribution on workpieces on several different plasma processors of the same type. Both references are only concerned with the structure and operation of a plasma processor.

In addition, Ni et al. does not disclose subject matter that is relevant to claim 36. The Office Action relies on Figures 1 and 2 and the description thereof in Ni et al. to disclose moving different positions or changing the relative angular position of a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 36 does not the say the coil is moved to different positions or that the relative angular position of a coil is changed, but requires the exterior and interior windings of a coil to be turned relative to each other and to the coil axis. Claim 36 requires the turning to be until tests indicate optimum uniform plasma distribution is achieved in each processor. None of the three references applied against claim 36 discloses testing of any type. Consequently, the comments in the office action about moving different positions or changing the relative angular position of a coil in Ni et al are not germane to the movement claim 36 defines. In fact, Ni et al. can not disclose moving exterior and interior windings of the coil including single winding 216 relative to each other and to the coil axis because the coil has only one winding having plural turns.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 36. Claim 36 is directed to a method that is performed on several different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 36 based on Ishii et al., Ni et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 36. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 36.

4. The rejection of Independent claim 39 based on Ishii et al., Ni et al., and Savas is wrong.

The allegation in the Office Action that Ishii et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 39 for a method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor, wherein the method is performed on several different plasma processors of the same type, and having different azimuthal electric field and plasma density distributions from processor to processor. There is no disclosure in Ishii et al. of such a control method. Ishii et al. is only concerned with the structure of a single plasma processor and is not

related to control of several (that is, three or more) different inductive plasma processors of the same type, as claim 39 requires. There is nothing in the Ishii et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 9 and the description thereof of Ishii et al. to disclose the step of positioning the exterior winding of Ishii et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 39 because claim 39 requires the exterior and interior windings of the coil to be moved relative to each other about an axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Claim 39 indicates the moving assists in controlling electric field distribution and plasma density distribution of the processor. Consideration of Figure 9 and the description thereof of Ishii et al. provides no disclosure of moving interior and exterior windings 24A and 24B relative to each other and the coil axis, no less moving of the two windings relative to each other and an axis to achieve the results set forth in claim 39. Because Ishii et al. is not concerned with a method that is performed on several processors of the same type to control plasma flux distribution on workpieces in the several processors and does not disclose moving, no less turning, an interior winding relative to an exterior winding or vice versa, Ishii et al. does not disclose the invention substantially as claimed in claim 39 and the rejection of claim 39 fails for these reasons alone.

The proposed combination of Ishii et al., Ni et al., and Savas to meet the terms of claim 39 is incorrect because neither Ni et al., nor Savas is concerned with a method of controlling plasma flux distribution on workpieces on several different plasma processors of the same type. Both references are only concerned with the structure and operation of a plasma processor.

In addition, Ni et al. does not disclose subject matter that is relevant to claim 39. The Office Action relies on Figures 1 and 2 and the description thereof in Ni et al. to disclose moving different positions or changing the relative angular position of a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 39 does not the say the coil is moved to different positions or that the relative angular position of a coil is changed, but requires the exterior and interior windings of a coil to be moved relative to each other and to the coil axis. The movement is until tests indicate optimum uniform plasma distribution is achieved in each processor. None of the three references applied against claim 39 is remotely related to testing to indicate optimum uniform plasma distribution. Consequently, the comments in the office action about moving different positions or changing the relative angular position of a coil in Ni et al are not germane to the movement claim 39 defines. In fact, Ni et al. can not disclose moving exterior and interior windings of the coil including single winding 216 relative to each other and to the coil axis because the coil has only one winding having plural turns.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of

each other is also irrelevant to claim 39. Claim 39 is directed to a method that is performed on several different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 39 based on Ishii et al., Ni et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 39. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 39.

5. The rejections of claims 34, 37 and 40 based on Ishii et al., Ni et al., and Savas are incorrect.

Claims 34, 37 and 40 require the interior and exterior windings to be connected in parallel with each other. The Final Rejection relies on Ishii et al. to disclose this feature. In fact, the exterior and interior windings 24A and 24B of Fig. 9 of Ishii et al. are not connected in parallel because they are connected to different RF power sources.

6. The rejections of claims 35, 38 and 41 based on Ishii et al., Ni et al., and Savas are Incorrect.

Claims 35, 38 and 41 require the tests to be conducted by simultaneously supplying electric currents to the excitation terminals of the exterior and interior windings of the coil of a particular processor of claim 32 or 36 or 39. There is no

indication in the final rejection of where in any of the applied references any tests are performed, no less the tests specified by claims 35, 38 and/or 41.

F. The rejection of claims 32-41 under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent 6,164,241 in view of Yoshida et al., U.S. Patent 5,690,781 and Savas, U.S. Patent 5,983,828 is wrong.

This rejection is, to a large extent, cumulative to the rejection of claims 32-41 based on Ishii et al., Yoshida et al. and Savas, except that Chen et al. replaces Ishii et al.. In this regard, the wording of the rejection based on Chen et al., Yoshida et al. and Savas is identical to the wording of the rejection based on Ishii et al., Yoshida et al. and Savas, except that "Ishii et al." has been replaced in each instance by Chen et al. and there are references to specific portions of Chen et al. that differ from the specific portions of Ishii et al. that are referenced. The similarity is so great that in both rejections the name "Toshiba" is incorrectly used for "Yoshida;" see the last sentence of the first full paragraph on page 4 and the first full sentence on page 8 of the final rejection.

Because of the requirements of the Rules of Practice concerning the contents of appellant's briefs and the way they are being enforced, appellants feel compelled to provide separate arguments for each of claims 32-41 vis-à-vis this rejection, even though the arguments are quite redundant to the arguments set forth in Section VII.F of this Brief.

1. The rejection of independent claim 32 based on Chen et al., Yoshida et al., and Savas is wrong.

The allegation in the Office Action that Chen et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 32 for a method of manufacturing many different plasma processors of the same type. There is no disclosure in Chen et al. of manufacturing a single inductive plasma processor, no less many different inductive plasma processors of the same type, as claim 32 requires. Chen et al. is only concerned with the structure of a single plasma processor. There is nothing in the Chen et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with manufacturing many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 6 and the description thereof of Chen et al. to disclose the step of positioning the exterior winding of Chen et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 32 because claim 32 requires the exterior and interior windings of the coil to be moved relative to each other and to the coil axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Consideration of Figure 6 and the description thereof, at column 9, line 23-column 10, line 16, of Chen et al. provides no disclosure of moving interior and exterior windings (respectively referred to in Chen et al. as coil 2

and coil 1) relative to each other until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. While Chen indicates it is possible to turn coil 1 relative to coil 2, to provide a configuration where the small openings of the split rings of the coils are aligned, Chen et al. indicates such turning is not performed until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Instead, column 9, lines 37-40 indicates such turning is undesirable because such a configuration results in a lower power coupling to the plasma. Consequently, there is no nothing in Chen et al. that is concerned with the method defined by claim 32, and Chen et al. does not disclose the invention substantially as claimed.

The proposed combination of Chen et al. et al., Yoshida et al., and Savas to meet the terms of claim 32 is incorrect because neither Yoshida et al., nor Savas is concerned with a method of manufacturing many different plasma processors. Both references are only concerned with the structure and operation of a plasma processor in the field. Consequently, there is no teaching in any of the three references of a method of manufacturing many different plasma processors of the same type, as claim 32 requires.

In addition, Yoshida et al. does not disclose subject matter that is relevant to claim 32. The Office Action relies on Figures 6A and 6B and the description thereof in Yoshida et al. to disclose moving a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 32 does not the say the coil is moved, but requires the exterior and interior windings to be moved relative to each

other and to the coil axis. Consequently, the comments in the office action about coil movement in Yoshida et al are not germane to the movement claim 32 defines. In fact, Yoshida et al. can not disclose moving exterior and interior windings of coil 2 relative to each other and to the coil axis because coil 2 has only one winding.

One of ordinary skill in the art who thought Figures 6A and 6B of Yoshida et al. might be relevant to Chen et al. would have translated the entire Chen et al. coil including both windings 24A and 24B. There is no basis to conclude such a person would have looked to Yoshida et al. to move the Chen et al. interior and exterior windings (designated in Figure 6 as coils 1 and 2) relative to each other until tests indicate optimum uniform plasma distribution is achieved in each of the processes being manufactured. After reading the Yoshida et al. comment about axial symmetrically at column 5, lines 29 – 34, such a person would even had have second thoughts about moving the Chen et al. coil of Figure 6 at all because the coil of Figure 6 is axially symmetric. Yoshida et al. implies translating an axial symmetric coil is not necessary.

Yoshida et al. is also irrelevant to claim 32 because Yoshida et al. Is concerned with moving the coil of a single plasma processor, apparently while the processor is being used in the field. In contrast, Appellants' claim 32 is concerned with a method of manufacturing many different plasma processors.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 32. Claim 32 is directed to a method of

manufacturing many different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 32 based on Chen et al., Yoshida et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 32. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 32.

2. The rejection of claim 33 based on Chen et al., Yoshida et al., and Savas is incorrect.

Claim 33 requires the exterior and interior windings of claim 32 to be turned relative to each other and the coil axis. The rejection based on Chen et al., Yoshida et al., and Savas states Chen et al. fails to disclose the turning feature, but does not indicate where the feature is found in either Yoshida et al. or Savas. Hence, no attempt to establish a prima facie case of obviousness vis a vis claim 33 has been made.

3. The rejection of independent claim 36 based on Chen et al., Yoshida et al., and Savas is wrong.

The allegation in the Office Action that Chen et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma

processor, ignores the requirement of the claim 36 for a method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor, wherein the method is performed on several different plasma processors of the same type, and having different azimuthal electric field and plasma density distributions from processor to processor. There is no disclosure in Chen et al. of such a control method. Chen et al. is only concerned with the structure of a single plasma processor and is not related to control of several (that is, three or more) different inductive plasma processors of the same type, as claim 36 requires. There is nothing in the Chen et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 6 and the description thereof of Chen et al. to disclose the step of positioning the exterior winding of Chen et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 36 because claim 36 requires the exterior and interior windings of the coil to be turned relative to each other and to the coil axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Consideration of Figure 6 and the description thereof, at column 9, line 23-column 10, line 16, of Chen et al. provides no disclosure of turning interior and exterior windings (respectively referred to in Chen et al. as coil 2 and coil 1) relative to each other until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. While Chen indicates it is

possible to turn coil 1 relative to coil 2, to provide a configuration where the small openings of the split rings of the coils are aligned, Chen et al. indicates such turning is not performed until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Instead, column 9, lines 37-40 indicates such turning is undesirable because such a configuration results in a lower power coupling to the plasma. Consequently, there is no nothing in Chen et al. that is concerned with the method defined by claim 36, and Chen et al. does not disclose the invention substantially as claimed.

The rejection based on Chen et al., Yoshida et al., and Savas states Chen et al. fails to disclose the turning feature, but does not indicate where the feature is found in either Yoshida et al. or Savas. Hence, no attempt to establish a prima facie case of obviousness vis a vis claim 36 has been made.

The proposed combination of Chen et al., Yoshida et al., and Savas to meet the terms of claim 36 is incorrect because neither Yoshida et al., nor Savas is concerned with a method of controlling plasma flux distribution on workpieces on several different plasma processors of the same type. Both references are only concerned with the structure and operation of a plasma processor.

In addition, Yoshida et al. does not disclose subject matter that is relevant to claim 36. The Office Action relies on Figures 6A and 6B and the description thereof in Yoshida et al. to disclose moving a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 36 does not the say the coil is moved, but requires the exterior and interior windings to be turned relative to each

other and to an axis. Consequently, the comments in the office action about coil movement in Yoshida et al are not germane to the movement claim 36 defines. In fact, Yoshida et al. can not disclose turning exterior and interior windings of coil 2 relative to each other and to an axis because coil 2 has only one winding.

One of ordinary skill in the art who thought Figures 6A and 6B of Yoshida et al. might be relevant to Chen et al. would have translated the entire Chen et al. coil of Figure 6. There is no basis to conclude such a person would have looked to Yoshida to turn windings referred to by Chen et al. as coils 1 and 2 relative to each other. After reading the Yoshida et al. comment about axial symmetrically at column 5, lines 29 – 34, such a person would even had have second thoughts about moving the Chen et al. coil of Figure 6 at all because the coil of Figure 6 is axially symmetric. Yoshida et al. implies translating an axial symmetric coil is not necessary.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 36. Claim 36 is directed to a method that is performed on several different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 36 based on Chen et al., Yoshida et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action

as to the motivation for combining the references to meet the terms of claim 36. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 36.

4. The rejection of independent claim 39 based on Chen et al., Yoshida et al., and Savas is wrong.

The allegation in the Office Action that Chen et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 39 for a method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor, wherein the method is performed on several different plasma processors of the same type, and having different azimuthal electric field and plasma density distributions from processor to processor. There is no disclosure in Chen et al. of such a control method. Chen et al. is only concerned with the structure of a single plasma processor and is not related to control of several (that is, three or more) different inductive plasma processors of the same type, as claim 39 requires. There is nothing in the Chen et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 6 and the description thereof of Chen et al. to disclose the step of positioning the exterior winding of Chen et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 39 because claim 39 requires the exterior and interior windings of the coil to be moved

relative to each other and to the coil axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Consideration of Figure 6 and the description thereof, at column 9, line 23-column 10, line 16, of Chen et al. provides no disclosure of moving interior and exterior windings (respectively referred to in Chen et al. as coil 2 and coil 1) relative to each other until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. While Chen indicates it is possible to turn coil 1 relative to coil 2, to provide a configuration where the small openings of the split rings of the coils are aligned, Chen et al. indicates such turning is not performed until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Instead, column 9, lines 37-40 indicates such turning is undesirable because such a configuration results in a lower power coupling to the plasma. Consequently, there is no nothing in Chen et al. that is concerned with the method defined by claim 39, and Chen et al. does not disclose the invention substantially as claimed.

The proposed combination of Ishii et al., Yoshida et al., and Savas to meet the terms of claim 39 is incorrect because neither Yoshida et al., nor Savas is concerned with a method of controlling plasma flux distribution on workpieces on several different plasma processors of the same type. Both references are only concerned with the structure and operation of a plasma processor.

In addition, Yoshida et al. does not disclose subject matter that is relevant to claim 39. The Office Action relies on Figures 6A and 6B and the description thereof in Yoshida et al. to disclose moving a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 39 does not the say the coil is moved, but requires the exterior and interior windings to be moved relative to each other and to an axis. Consequently, the comments in the office action about coil movement in Yoshida et al are not germane to the movement claim 39 defines. In fact, Yoshida et al. can not disclose move exterior and interior windings of coil 2 relative to each other and to an axis because coil 2 has only one winding.

One of ordinary skill in the art who thought Figures 6A and 6B of Yoshida et al. might be relevant to Chen et al. would have translated the entire Chen et al. coil including both windings Chen et al. refers to as coils 1 and 2. There is no basis to conclude such a person would have looked to Yoshida to turn the windings of Chen et al. relative to each other. After reading the Yoshida et al. comment about axial symmetrically at column 5, lines 29 – 34, such a person would even had have second thoughts about moving the Ishii coil of Figure 9 at all because the coil of Figure 9 is axially symmetric. Yoshida et al. implies translating an axial symmetric coil is not necessary.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 39. Claim 39 is directed to a method that is performed on several different processors of the same type. This is entirely different

from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 39 based on Chen et al., Yoshida et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 39. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 39.

5. The rejections of claims 35, 38 and 41 based on Ishii et al., Yoshida et al., and Savas are incorrect.

Claims 35, 38 and 41 require the tests to be conducted by simultaneously supplying electric currents to the excitation terminals of the exterior and interior windings of the coil of a particular processor of claim 32. Yoshida et al. is relied on for testing the processor of Figure 6A that includes coil 2 of Figure 6B. However coil 2 of Figure 6B has a single winding. Yoshida et al can not test by simultaneously applying current to a winding of a coil having exterior and interior windings because coil 2 has only one winding, a feature precluding applying current to interior and exterior windings of a coil.

G. The rejection of claims 32-41 under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent 6,164,241 in view of Ni et al, WO 00/58993 and Savas, U.S. Patent 5,983,828 is wrong.

This rejection is, to a large extent, cumulative to the rejection of claims 32-41 based on Chen et al., Yoshida et al. and Savas, except that Ni et al. replaces Yoshida et al.. In this regard, the wording of the rejection based on Chen et al., Ni et al. and Savas is identical to the wording of the rejection based on Chen et al., Yoshida et al. and Savas, except that "Yoshida et al." has been replaced in each instance by Ni et al. and there are references to specific portions of Ni et al. that differ from the specific portions of Yoshida et al. that are referenced.

Ni et al., however, is less relevant than Yoshida et al. because the movement of the single winding of the Ni et al. coil is on a preprogrammed basis in response to recipes stored in memory, rather than in response to testing. However, because of the requirements of the Rules of Practice concerning the contents of appellant's briefs and the way they are being enforced, appellants feel compelled to provide separate arguments for each of claims 32-41 vis-à-vis this rejection, even though the arguments, except for the above point, are quite redundant to the arguments set forth in Section VII.F of this Brief.

1. The rejection of independent claim 32 based on Chen et al., Ni et al., and Savas is wrong.

The allegation in the Office Action that Chen et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 32 for a method of manufacturing many different plasma processors of the same type. There is no disclosure in Chen et

al. of manufacturing a single inductive plasma processor, no less many different inductive plasma processors of the same type, as claim 32 requires. Chen et al. is only concerned with the structure of a single plasma processor. There is nothing in the Chen et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with manufacturing many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 6 and the description thereof of Chen et al. to disclose the step of positioning the exterior winding of Chen et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 32 because claim 32 requires the exterior and interior windings of the coil to be moved relative to each other and to the coil axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Consideration of Figure 6 and the description thereof, at column 9, line 23-column 10, line 16, of Chen et al. provides no disclosure of moving interior and exterior windings (respectively referred to in Chen et al. as coil 2 and coil 1) relative to each other until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. While Chen indicates it is possible to turn coil 1 relative to coil 2, to provide a configuration where the small openings of the split rings of the coils are aligned, Chen et al. indicates such turning is not performed until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Instead, column 9, lines

37-40 indicates such turning is undesirable because such a configuration results in a lower power coupling to the plasma. Consequently, there is no nothing in Chen et al. that is concerned with the method defined by claim 32, and Chen et al. does not disclose the invention substantially as claimed.

The proposed combination of Chen et al. et al., Ni et al., and Savas to meet the terms of claim 32 is incorrect because neither Ni et al., nor Savas is concerned with a method of manufacturing many different plasma processors. Both references are only concerned with the structure and operation of a plasma processor in the field. Consequently, there is no teaching in any of the three references of a method of manufacturing many different plasma processors of the same type, as claim 32 requires.

In addition, Ni et al. does not disclose subject matter that is relevant to claim 32. The Office Action relies on Figures 1 and 2 and the description thereof in Ni et al. to disclose moving different positions or changing the relative angular position of a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 32 does not the say the coil is moved to different positions or that the relative angular position of a coil is changed, but requires the exterior and interior windings of a coil to be moved relative to each other and to the coil axis. Claim 32 requires the moving to be until tests indicate optimum uniform plasma distribution is achieved in each processor. None of the three references applied against claim 32 discloses testing of any type. Consequently, the comments in the office action about moving different positions or changing the relative angular position of a coil in Ni et al are not

germane to the movement claim 32 defines. In fact, Ni et al. can not disclose moving exterior and interior windings of the coil including single winding 216 relative to each other and to the coil axis because the coil has only one winding having plural turns.

Ni et al. is also irrelevant to claim 32 because Ni et al. is concerned with moving the coil of a single plasma processor, while the processor is being used in the field. The movement is in response to signal stored in a memory to control the recipes for processing different workpieces. In contrast, Appellants' claim 32 is concerned with a method of manufacturing many different plasma processors.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 32. Claim 32 is directed to a method of manufacturing many different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 32 based on Chen et al., Ni et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 32. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 32.

2. The rejection of claim 33 based on Chen et al., Ni et al., and Savas is incorrect.

Claim 33 requires the exterior and interior windings of claim 32 to be turned relative to each other and the coil axis. The rejection based on Chen et al., Ni et al., and Savas states Chen et al. fails to disclose the turning feature, but does not indicate where the feature is found in either Yoshida et al. or Savas. Hence, no attempt to establish a prima facie case of obviousness vis a vis claim 33 has been made.

3. The rejection of independent claim 36 based on Chen et al., Ni et al., and Savas is wrong.

The allegation in the Office Action that Chen et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 36 for a method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor, wherein the method is performed on several different plasma processors of the same type, and having different azimuthal electric field and plasma density distributions from processor to processor. There is no disclosure in Chen et al. of such a control method. Chen et al. is only concerned with the structure of a single plasma processor and is not related to control of several (that is, three or more) different inductive plasma processors of the same type, as claim 36 requires. There is nothing in the Chen et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 6 and the description thereof of Chen et al. to disclose the step of positioning the exterior winding of Chen et al.

relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 36 because claim 36 requires the exterior and interior windings of the coil to be turned relative to each other and to the coil axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Consideration of Figure 6 and the description thereof, at column 9, line 23-column 10, line 16, of Chen et al. provides no disclosure of turning interior and exterior windings (respectively referred to in Chen et al. as coil 2 and coil 1) relative to each other until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. While Chen indicates it is possible to turn coil 1 relative to coil 2, to provide a configuration where the small openings of the split rings of the coils are aligned, Chen et al. indicates such turning is not performed until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Instead, column 9, lines 37-40 indicates such turning is undesirable because such a configuration results in a lower power coupling to the plasma. Consequently, there is no nothing in Chen et al. that is concerned with the method defined by claim 36, and Chen et al. does not disclose the invention substantially as claimed.

The rejection based on Chen et al., Ni et al., and Savas states Chen et al. fails to disclose the turning feature, but does not indicate where the feature is found in either Ni et al. or Savas. Hence, no attempt to establish a prima facie case of obviousness vis a vis claim 36 has been made.

The proposed combination of Chen et al., Ni et al., and Savas to meet the terms of claim 36 is incorrect because neither Ni et al., nor Savas is concerned with a method of controlling plasma flux distribution on workpieces on several different plasma processors of the same type. Both references are only concerned with the structure and operation of a plasma processor.

In addition, Ni et al. does not disclose subject matter that is relevant to claim 36. The Office Action relies on Figures 1 and 2 and the description thereof in Ni et al. to disclose moving different positions or changing the relative angular position of a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 36 does not the say the coil is moved to different positions or that the relative angular position of a coil is changed, but requires the exterior and interior windings of a coil to be turned relative to each other and to the coil axis. Claim 36 requires the turning to be until tests indicate optimum uniform plasma distribution is achieved in each processor. None of the three references applied against claim 36 discloses testing of any type. Consequently, the comments in the office action about moving different positions or changing the relative angular position of a coil in Ni et al are not germane to the movement claim 36 defines. In fact, Ni et al. can not disclose moving exterior and interior windings of the coil including single winding 216 relative to each other and to the coil axis because the coil has only one winding having plural turns.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 36. Claim 36 is directed to a method that is

performed on several different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 36 based on Chen et al., Ni et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 36. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 36.

4. The rejection of independent claim 39 based on Chen et al., Ni et al., and Savas is wrong.

The allegation in the Office Action that Chen et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 39 for a method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor, wherein the method is performed on several different plasma processors of the same type, and having different azimuthal electric field and plasma density distributions from processor to processor. There is no disclosure in Chen et al. of such a control method. Chen et al. is only concerned with the structure of a single plasma processor and is not related to control of several (that is, three or more) different inductive plasma processors of the same type, as claim 39 requires. There is nothing in the

Chen et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 6 and the description thereof of Chen et al. to disclose the step of positioning the exterior winding of Chen et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 39 because claim 39 requires the exterior and interior windings of the coil to be moved relative to each other and to the coil axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Consideration of Figure 6 and the description thereof, at column 9, line 23-column 10, line 16, of Chen et al. provides no disclosure of moving interior and exterior windings (respectively referred to in Chen et al. as coil 2 and coil 1) relative to each other until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. While Chen indicates it is possible to turn coil 1 relative to coil 2, to provide a configuration where the small openings of the split rings of the coils are aligned, Chen et al. indicates such turning is not performed until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Instead, column 9, lines 37-40 indicates such turning is undesirable because such a configuration results in a lower power coupling to the plasma. Consequently, there is no nothing in Chen et al. that is concerned with the method defined by claim 39, and Chen et al. does not disclose the invention substantially as claimed.

The proposed combination of Ishii et al., Ni et al., and Savas to meet the terms of claim 39 is incorrect because neither Ni et al., nor Savas is concerned with a method of controlling plasma flux distribution on workpieces on several different plasma processors of the same type. Both references are only concerned with the structure and operation of a plasma processor.

In addition, Ni et al. does not disclose subject matter that is relevant to claim 39. The Office Action relies on Figures 1 and 2 and the description thereof in Ni et al. to disclose moving different positions or changing the relative angular position of a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 39 does not the say the coil is moved to different positions or that the relative angular position of a coil is changed, but requires the exterior and interior windings of a coil to be moved relative to each other and to the coil axis. The movement is until tests indicate optimum uniform plasma distribution is achieved in each processor. None of the three references applied against claim 39 is remotely related to testing to indicate optimum uniform plasma distribution. Consequently, the comments in the office action about moving different positions or changing the relative angular position of a coil in Ni et al are not germane to the movement claim 39 defines. In fact, Ni et al. can not disclose moving exterior and interior windings of the coil including single winding 216 relative to each other and to the coil axis because the coil has only one winding having plural turns.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of

each other is also irrelevant to claim 39. Claim 39 is directed to a method that is performed on several different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 39 based on Chen et al., Ni et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 39. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 39.

5. The rejections of claims 35, 38 and 41 based on Chen et al., Ni et al., and Savas are incorrect.

Claims 35, 38 and 41 require the tests to be conducted by simultaneously supplying electric currents to the excitation terminals of the exterior and interior windings of the coil of a particular processor of claims 32, 36 and 39, respectively. However, none of these three references disclose testing, no less testing by simultaneously supplying electric currents to the excitation terminals of exterior and interior windings of a coil of many or several different processors until tests indicate optimum uniform plasma distribution is achieved in each processor.

H. The rejection of claims 32-41 under 35 U.S.C. 103(a) as being unpatentable over Lee et al., U.S. Patent 6,288,493 in view of

Yoshida et al., U.S. Patent 5,690,781 and Savas, U.S. Patent 5,983,828 is wrong.

This rejection is, to a large extent, cumulative to the rejection of claims 32-41 based on Ishii et al., Yoshida et al. and Savas, except that Lee et al. replaces Ishii et al.. In this regard, the wording of the rejection based on Lee et al., Yoshida et al. and Savas is identical to the wording of the rejection based on Ishii et al., Yoshida et al. and Savas, except that "Ishii et al." has been replaced in each instance by Lee et al. and there are references to specific portions of Lee et al. that differ from the specific portions of Ishii et al. that are referenced. The similarity is so great that in both rejections the name "Toshiba" is incorrectly used for "Yoshida;" see the last sentence of the first full paragraph on page 4 and the last sentence on page 11 of the final rejection.

Because of the requirements of the Rules of Practice concerning the contents of appellant's briefs and the way they are being enforced, appellants feel compelled to provide separate arguments for each of claims 32-41 vis-à-vis this rejection, even though the arguments are quite redundant to the arguments set forth in Section VII.F of this Brief.

1. **The rejection of independent claim 32 based on Lee et al., Yoshida et al., and Savas is wrong.**

The allegation in the Office Action that Lee et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 32 for a method of manufacturing many different plasma processors of the same type. There is no disclosure in Lee et

al. of manufacturing a single inductive plasma processor, no less many different inductive plasma processors of the same type, as claim 32 requires. Lee et al. is only concerned with the structure of a single plasma processor. There is nothing in the Lee et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with manufacturing many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 3B and the description thereof of Lee et al. to disclose the step of positioning the exterior winding of Lee et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 32 because claim 32 requires the exterior and interior windings of the coil to be moved relative to each other and to the coil axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Consideration of Figure 3B and the description thereof of Lee et al. provides no disclosure of moving interior and exterior windings 310a, 310b and 310c (referred to by Lee et al as antenna units) relative to each other and the coil axis, no less movement of two of these windings relative to each other and the axis to achieve the result set forth in claim 32. Because Lee et al. is not concerned with the method defined in the preamble of claim 32, and does not disclose moving an interior winding relative to an exterior winding or vice versa, the rejection of claim 32 fails, for these reasons alone.

The proposed combination of Lee et al., Yoshida et al., and Savas to meet the terms of claim 32 is incorrect because neither Yoshida et al., nor Savas is concerned with a method of manufacturing many different plasma processors. Both references are only concerned with the structure and operation of a plasma processor in the field. Consequently, there is no teaching in any of the three references of a method of manufacturing many different plasma processors of the same type, as claim 32 requires.

In addition, Yoshida et al. does not disclose subject matter that is relevant to claim 32. The Office Action relies on Figures 6A and 6B and the description thereof in Yoshida et al. to disclose moving a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 32 does not the say the coil is moved, but requires the exterior and interior windings to be moved relative to each other and to the coil axis. Consequently, the comments in the office action about coil movement in Yoshida et al are not germane to the movement claim 32 defines. In fact, Yoshida et al. can not disclose moving exterior and interior windings of coil 2 relative to each other and to the coil axis because coil 2 has only one winding.

One of ordinary skill in the art who thought Figures 6A and 6B of Yoshida et al. might be relevant to Ishii et al. would have translated the entire Lee et al. coil including both windings 310a, 310b and 310c. There is no basis to conclude such a person would have looked to Yoshida to move windings 310a, 310b and 310c of Lee et al. relative to each other. After reading the Yoshida et al. comment about axial symmetrically at column 5, lines 29 – 34, such a person would even had have second

thoughts about moving the Lee et al coil of Figure 3B at all because the coil of Figure 3B is axially symmetric. Yoshida implies translating an axial symmetric coil is not necessary.

Yoshida et al. is also irrelevant to claim 32 because Yoshida et al. is concerned with moving the coil of a single plasma processor, apparently while the processor is being used in the field. In contrast, Appellants' claim 32 is concerned with a method of manufacturing many different plasma processors.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 32. Claim 32 is directed to a method of manufacturing many different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 32 based on Lee et al., Yoshida et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 32. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 32.

2. The rejection of claim 33 based on Lee et al., Yoshida et al., and Savas is incorrect.

Claim 33 requires the exterior and interior windings of claim 32 to be turned relative to each other and the coil axis. The rejection based on Lee et al., Yoshida et al., and Savas admits Lee et al. fails to disclose the turning feature, but does not indicate where the feature is found in either Yoshida et al. or Savas. Hence, no attempt to establish a prima facie case of obviousness vis a vis claim 33 has been made. Indeed, none of the three references disclose the turning of claim 33.

3. The rejection of Independent claim 36 based on Lee et al., Yoshida et al., and Savas is wrong.

The allegation in the Office Action that Lee et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 36 for a method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor, wherein the method is performed on several different plasma processors of the same type, and having different azimuthal electric field and plasma density distributions from processor to processor. There is no disclosure in Lee et al. of such a control method. Lee et al. is only concerned with the structure of a single plasma processor and is not related to control of several (that is, three or more) different inductive plasma processors of the same type, as claim 36 requires. There is nothing in the Lee et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 3B and the description thereof of Lee et al. to disclose the step of positioning the exterior winding of Lee et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 36 because claim 36 requires the exterior and interior windings of the coil to be turned relative to each other about an axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Claim 36 indicates the turning assists in controlling azimuthal electric field distribution and plasma density distribution of the processor. Consideration of Figure 3B and the description thereof of Lee et al. provides no disclosure of moving interior and exterior windings 130a, 130b and 130c relative to each other and the coil axis, no less turning of these windings relative to each other and an axis to achieve the results set forth in claim 36. Because Lee et al. is not concerned with a method that is performed on several processors of the same type to control plasma flux distribution on workpieces in the several processors and does not disclose moving, no less turning, an interior winding relative to an exterior winding or vice versa, Lee et al. does not disclose the invention substantially as claimed in claim 36 and the rejection of claim 36 fails for these reasons alone.

The rejection based on Lee et al., Yoshida et al., and Savas admits Lee et al. fails to disclose the turning feature, but does not indicate where the feature is found in either Yoshida et al. or Savas. Hence, no attempt to establish a prima facie case of

obviousness vis a vis claim 36 has been made. Indeed, none of the three references disclose the turning of claim 36.

The proposed combination of Lee et al., Yoshida et al., and Savas to meet the terms of claim 36 is incorrect because neither Yoshida et al., nor Savas is concerned with a method of controlling plasma flux distribution on workpieces on several different plasma processors of the same type. Both references are only concerned with the structure and operation of a plasma processor.

In addition, Yoshida et al. does not disclose subject matter that is relevant to claim 36. The Office Action relies on Figures 6A and 6B and the description thereof in Yoshida et al. to disclose moving a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 36 does not the say the coil is moved, but requires the exterior and interior windings to be turned relative to each other and to an axis. Consequently, the comments in the office action about coil movement in Yoshida et al are not germane to the movement claim 36 defines. In fact, Yoshida et al. can not disclose turning exterior and interior windings of coil 2 relative to each other and to an axis because coil 2 has only one winding.

One of ordinary skill in the art who thought Figures 6A and 6B of Yoshida et al. might be relevant to Lee et al. would have translated the entire Lee et al. coil including windings 310a, 310b and 310c. There is no basis to conclude such a person would have looked to Yoshida to turn windings 130a, 130b and/or 130c of Lee et al. relative to each other. After reading the Yoshida et al. comment about axial symmetrically at column 5, lines 29 – 34, such a person would even had have second thoughts about

moving the Lee et al coil of Figure 3B at all because the coil of Figure 3B is axially symmetric. Yoshida et al implies translating an axial symmetric coil is not necessary.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 36. Claim 36 is directed to a method that is performed on several different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 36 based on Lee et al., Yoshida et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 36. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 36.

4. The rejection of independent claim 39 based on Lee et al., Yoshida et al., and Savas is wrong.

The allegation in the Office Action that Lee et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of claim 39 for a method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor, wherein the method

is performed on several different plasma processors of the same type, and having different azimuthal electric field and plasma density distributions from processor to processor. There is no disclosure in Lee et al. of such a control method. Lee et al. is only concerned with the structure of a single plasma processor and is not related to control of several (that is, three or more) different inductive plasma processors of the same type, as claim 39 requires. There is nothing in the Lee et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 3B and the description thereof of Lee et al. to disclose the step of positioning the exterior winding of Lee et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 39 because claim 39 requires the exterior and interior windings of the coil to be moved relative to each other about an axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Claim 39 indicates the moving assists in controlling electric field distribution and plasma density distribution of the processor. Consideration of Figure 3B and the description thereof of Lee et al. provides no disclosure of moving interior and exterior windings 130a, 130b and/or 130c relative to each other and the coil axis, no less moving these windings relative to each other and an axis to achieve the results set forth in claim 39. Because Lee et al. is not concerned with a method that is performed on several processors of the same type to

control plasma flux distribution on workpieces in the several processors and does not disclose moving, no less turning, an interior winding relative to an exterior winding or vice versa, Ishii et al. does not disclose the invention substantially as claimed in claim 39 and the rejection of claim 39 fails for these reasons alone.

The proposed combination of Lee et al., Yoshida et al., and Savas to meet the terms of claim 39 is incorrect because neither Yoshida et al., nor Savas is concerned with a method of controlling plasma flux distribution on workpieces on several different plasma processors of the same type. Both references are only concerned with the structure and operation of a plasma processor.

In addition, Yoshida et al. does not disclose subject matter that is relevant to claim 39. The Office Action relies on Figures 6A and 6B and the description thereof in Yoshida et al. to disclose moving a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 39 does not the say the coil is moved, but requires the exterior and interior windings to be moved relative to each other and to an axis. Consequently, the comments in the office action about coil movement in Yoshida et al are not germane to the movement claim 39 defines. In fact, Yoshida et al. can not disclose moving exterior and interior windings of coil 2 relative to each other and to an axis because coil 2 has only one winding.

One of ordinary skill in the art who thought Figures 6A and 6B of Yoshida et al. might be relevant to Ishii et al. would have translated the entire Lee et al. coil including both windings 130a, 130b and 130c. There is no basis to conclude such a person would have looked to Yoshida to turn windings 130a, 130b and/or 130c of Lee et al.

relative to each other. After reading the Yoshida et al. comment about axial symmetrically at column 5, lines 29 – 34, such a person would even had have second thoughts about moving the Lee et al coil of Figure 3B at all because the coil of Figure 3B is axially symmetric. Yoshida implies translating an axial symmetric coil is not necessary.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 39. Claim 39 is directed to a method that is performed on several different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 39 based on Lee et al., Yoshida et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 39. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 39.

5. The rejections of claims 35, 38 and 41 based on Lee et al., Yoshida et al., and Savas are Incorrect.

Claims 35, 38 and 41 require the tests to be conducted by simultaneously supplying electric currents to the excitation terminals of the exterior and interior windings of the coil of a particular processor of claim 32. Yoshida et al. is relied on for testing the processor of Figure 6A that includes coil 2 of Figure 6B. However coil 2 of Figure 6B has a single winding. Yoshida et al can not test by simultaneously applying current to a coil having exterior and interior windings because coil 2 has only one winding, a feature precluding applying current to interior and exterior windings of a coil.

I. The rejection of claims 32-41 under 35 U.S.C. 103(a) as being unpatentable over Lee et al., U.S. Patent 6,288,493 in view of Ni et al., WO 00/58993 and Savas, U.S. Patent 5,983,828 is wrong.

This rejection is, to a large extent, cumulative to the rejection of claims 32-41 based on Lee et al., Yoshida et al. and Savas, except that Ni et al. replaces Yoshida et al.. In this regard, the wording of the rejection based on Lee et al., Ni et al. and Savas is identical to the wording of the rejection based on Lee et al., Yoshida et al. and Savas, except that "Yoshida et al." has been replaced in each instance by Ni et al. and there are references to specific portions of Ni et al. that differ from the specific portions of Yoshida et al. that are referenced.

Ni et al., however, is less relevant than Yoshida et al. because the movement of the single winding of the Ni et al. coil is on a preprogrammed basis in response to recipes stored in memory, rather than in response to testing. However, because of the requirements of the Rules of Practice concerning the contents of appellant's briefs and

the way they are being enforced, appellants feel compelled to provide separate arguments for each of claims 32-41 vis-à-vis this rejection, even though the arguments, except for the above point, are quite redundant to the arguments set forth in Section VII.J (?) of this Brief.

1. The rejection of independent claim 32 based on Lee et al., Ni et al., and Savas is wrong.

The allegation in the Office Action that Lee et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 32 for a method of manufacturing many different plasma processors of the same type. There is no disclosure in Lee et al. of manufacturing a single inductive plasma processor, no less many different inductive plasma processors of the same type, as claim 32 requires. Lee et al. is only concerned with the structure of a single plasma processor. There is nothing in the Lee et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with manufacturing many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 3B and the description thereof of Lee et al. to disclose the step of positioning the exterior winding of Lee et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 32 because claim 32 requires the exterior and interior windings of the coil to be moved relative to each other and to the coil axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship

until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Consideration of Figure 3B and the description thereof of Lee et al. provides no disclosure of moving interior and exterior windings 310a, 310b and/or 310c relative to each other and the coil axis, no less movement of these windings relative to each other and the axis to achieve the result set forth in claim 32. Because Lee et al. is not concerned with the method defined in the preamble of claim 32, and does not disclose moving an interior winding relative to an exterior winding or vice versa, the rejection of claim 32 fails, for these reasons alone.

The proposed combination of Lee et al., Ni et al., and Savas to meet the terms of claim 32 is incorrect because neither Ni et al., nor Savas is concerned with a method of manufacturing many different plasma processors. Both references are only concerned with the structure and operation of a plasma processor in the field. Consequently, there is no teaching in any of the three references of a method of manufacturing many different plasma processors of the same type, as claim 32 requires.

In addition, Ni et al. does not disclose subject matter that is relevant to claim 32. The Office Action relies on Figures 1 and 2 and the description thereof in Ni et al. to disclose moving different positions or changing the relative angular position of a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 32 does not the say the coil is moved to different positions or that the relative angular position of a coil is changed, but requires the exterior and interior windings of a coil to be moved relative to each other and to the coil axis. The movement is until

tests indicate optimum uniform plasma distribution is achieved in each processor. None of the three references applied against claim 32 remotely discloses testing of any type, no less testing as defined in claim 32. Consequently, the comments in the office action about moving different positions or changing the relative angular position of a coil in Ni et al are not germane to the movement claim 32 defines. In fact, Ni et al. can not disclose moving exterior and interior windings of the coil including single winding 216 relative to each other and to the coil axis because the coil has only one winding having plural turns.

Ni et al. is also irrelevant to claim 32 because Ni et al. is concerned with moving the coil of a single plasma processor, while the processor is being used in the field in connection with different recipes for applying different types of plasmas to workpieces. In contrast, Appellants' claim 32 is concerned with a method of manufacturing many different plasma processors.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 32. Claim 32 is directed to a method of manufacturing many different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 32 based on Lee et al., Ni et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the

terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 32. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 32.

2. The rejection of claim 33 based on Lee et al., Ni et al., and Savas is incorrect.

Claim 33 requires the exterior and interior windings of claim 32 to be turned relative to each other and the coil axis. The rejection based on Lee et al., Ni et al., and Savas admits Lee et al. fails to disclose the turning feature, but does not indicate where the feature is found in either Ni et al. or Savas. Hence, no attempt to establish a prima facie case of obviousness vis a vis claim 33 has been made. Indeed, none of the three references disclose the turning of claim 33.

3. The rejection of independent claim 36 based on Lee et al., Ni et al., and Savas is wrong.

The allegation in the Office Action that Lee et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 36 for a method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor, wherein the method is performed on several different plasma processors of the same type, and having different azimuthal electric field and plasma density distributions from processor to processor. There is no disclosure in Lee et al. of such a control method. Lee et al. is only concerned with the structure of a single plasma processor and is not related to control of several (that is, three or more) different inductive plasma

processors of the same type, as claim 36 requires. There is nothing in the Lee et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 3B and the description thereof of Lee et al. to disclose the step of positioning the exterior winding of Lee et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 36 because claim 36 requires the exterior and interior windings of the coil to be turned relative to each other about an axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Claim 36 indicates the turning assists in controlling azimuthal electric field distribution and plasma density distribution of the processor. Consideration of Figure 3B and the description thereof of Lee et al. provides no disclosure of moving interior and exterior windings 130a, 130b and/or 130c relative to each other and the coil axis, no less turning of windings relative to each other and an axis to achieve the results set forth in claim 36. Because Lee et al. is not concerned with a method that is performed on several processors of the same type to control plasma flux distribution on workpieces in the several processors and does not disclose moving, no less turning, an interior winding relative to an exterior winding or vice versa, Lee et al. does not disclose the invention substantially as claimed in claim 36 and the rejection of claim 36 fails for these reasons alone.

The rejection based on Lee et al., Ni et al., and Savas admits Lee et al. fails to disclose the turning feature, but does not indicate where the feature is found in either Ni et al. or Savas. Hence, no attempt to establish a prima facie case of obviousness vis a vis claim 36 has been made. Indeed, none of the three references disclose the turning of claim 36.

The proposed combination of Lee et al., Ni et al., and Savas to meet the terms of claim 36 is incorrect because neither Ni et al., nor Savas is concerned with a method of controlling plasma flux distribution on workpieces on several different plasma processors of the same type. Both references are only concerned with the structure and operation of a plasma processor.

In addition, Ni et al. does not disclose subject matter that is relevant to claim 36. The Office Action relies on Figures 1 and 2 and the description thereof in Ni et al. to disclose moving different positions or changing the relative angular position of a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 36 does not the say the coil is moved to different positions or that the relative angular position of a coil is changed, but requires the exterior and interior windings of a coil to be turned relative to each other and to the coil axis. Claim 36 requires the turning to be until tests indicate optimum uniform plasma distribution is achieved in each processor. None of the three references applied against claim 36 discloses testing of any type. Consequently, the comments in the office action about moving different positions or changing the relative angular position of a coil in Ni et al are not germane to the movement claim 36 defines. In fact, Ni et al. can not disclose moving

exterior and interior windings of the coil including single winding 216 relative to each other and to the coil axis because the coil has only one winding having plural turns.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 36. Claim 36 is directed to a method that is performed on several different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 36 based on Lee et al., Ni et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 36. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 36.

4. The rejection of independent claim 39 based on Lee et al., Ni et al., and Savas is wrong.

The allegation in the Office Action that Lee et al. discloses the invention substantially as claimed, including a method of manufacturing an inductive plasma processor, ignores the requirement of the claim 39 for a method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor, wherein the method is performed on several different plasma processors of the same type, and

having different azimuthal electric field and plasma density distributions from processor to processor. There is no disclosure in Lee et al. of such a control method. Lee et al. is only concerned with the structure of a single plasma processor and is not related to control of several (that is, three or more) different inductive plasma processors of the same type, as claim 39 requires. There is nothing in the Lee et al. disclosure concerned with the problems set forth in Section VII.A of this Brief associated with many different inductive plasma processors of the same type.

The Office Action incorrectly relies on Figure 3B and the description thereof of Lee et al. to disclose the step of positioning the exterior winding of Lee et al. relative to the remainder of the coil so the plasma density incident on the workpiece has a predetermined desired relationship. This statement is not germane to claim 39 because claim 39 requires the exterior and interior windings of the coil to be moved relative to each other about an axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor. Claim 39 indicates the moving assists in controlling electric field distribution and plasma density distribution of the processor. Consideration of Figure 3B and the description thereof of Lee et al. provides no disclosure of moving interior and exterior windings 130a, 130b and/or 130c relative to each other and the coil axis, no less moving the windings relative to each other and an axis to achieve the results set forth in claim 39. Because Lee et al. is not concerned with a method that is performed on several processors of the same type to control plasma flux distribution on workpieces in the several processors and does not disclose

moving an interior winding relative to an exterior winding or vice versa, Lee et al. does not disclose the invention substantially as claimed in claim 39 and the rejection of claim 39 fails for these reasons alone.

The proposed combination of Lee et al., Ni et al., and Savas to meet the terms of claim 39 is incorrect because neither Ni et al., nor Savas is concerned with a method of controlling plasma flux distribution on workpieces on several different plasma processors of the same type. Both references are only concerned with the structure and operation of a plasma processor.

In addition, Ni et al. does not disclose subject matter that is relevant to claim 39. The Office Action relies on Figures 1 and 2 and the description thereof in Ni et al. to disclose moving different positions or changing the relative angular position of a coil to assist in controlling electric field distribution and plasma density distribution. However, claim 39 does not the say the coil is moved to different positions or that the relative angular position of a coil is changed, but requires the exterior and interior windings of a coil to be moved relative to each other and to the coil axis. The movement is until tests indicate optimum uniform plasma distribution is achieved in each processor. None of the three references applied against claim 39 is remotely related to testing to indicate optimum uniform plasma distribution. Consequently, the comments in the office action about moving different positions or changing the relative angular position of a coil in Ni et al are not germane to the movement claim 39 defines. In fact, Ni et al. can not disclose moving exterior and interior windings of the coil including single

winding 216 relative to each other and to the coil axis because the coil has only one winding having plural turns.

The reliance on the Savas disclosure of plasma reactor system 100 with two side-by side plasma generator chambers 102a and 102b that operate independently of each other is also irrelevant to claim 39. Claim 39 is directed to a method that is performed on several different processors of the same type. This is entirely different from plasma reactor system 100 of Savas wherein side-by-side generating chambers 102a and 102b share numerous resources to provide simultaneous operation and increased throughput; column 6, lines 27-30.

The rejection of claim 39 based on Lee et al., Ni et al., and Savas is a classical case of an Examiner casting around to find references the Examiner believes meet the terms of the claims. There is no valid rationale set forth in the Office Action as to the motivation for combining the references to meet the terms of claim 39. The references have nothing to do with the problem Appellants faced. In addition, the references, even when combined, do not include all the features of Appellants' claim 39.

5. The rejections of claims 35, 38 and 41 based on Ishii et al., Ni et al., and Savas are incorrect.

Claims 35, 38 and 41 require the tests to be conducted by simultaneously supplying electric currents to the excitation terminals of the exterior and interior windings of the coil of a particular processor of claim 32 or 36 or 39. There is no indication in the final rejection of where in any of the applied references any tests are performed, no less the tests specified by claims 35, 38 and/or 41.

J. Conclusion

Reversal of the rejection is in order.

Respectfully submitted,
LOWE HAUPTMAN & BERNER, LLP

Allan M. Lowe

Allan M. Lowe
Registration No. 19,641

1700 Diagonal Road, Suite 310
Alexandria, Virginia 22314
(703) 684-1111 AML/mps/cjf
Facsimile: (703) 518-5499
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VIII. Claims Appendix

32. A method of manufacturing many different inductive plasma processors of the same type, each of the processors including a plasma excitation coil having plural electrically connected windings, each of the windings having a pair of excitation terminals, the windings of the coil of each processor being adapted to be driven by an excitation source arrangement so that different currents simultaneously flow through the pair of excitation terminals of each winding, the plural windings of each coil of each processor being arranged so an exterior winding of the coil is about an interior winding of the coil, the exterior winding and the interior winding being about an axis of the coil, the different processors of the same type having differing electric field and plasma density distributions from processor to processor, the method comprising for each of the inductive plasma processors:

moving the position of the exterior and interior windings relative to each other and the axis so the plasma density incident on a workpiece in a chamber of the processor has a predetermined desired relationship until tests conducted on each processor indicate optimum uniform plasma distribution is achieved in each processor.

33. The method of claim 32 wherein the different processors of the same type have differing azimuthal electric field distributions, and wherein the movement of the exterior and interior windings relative to each other includes turning the windings

relative to each other and the axis until the tests indicate the different processors of the same type have the optimum uniform plasma distribution.

34. The method of claim 33 wherein the windings of the coil of each processor are electrically connected in parallel.

35. The method of claim 32 wherein the tests are conducted by simultaneously supplying electric current to the pair of excitation terminals of each winding of the coil of a particular processor.

36. A method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor including a plasma excitation coil having plural electrically connected windings, each of the windings having a pair of excitation terminals, the windings being adapted to be driven by an excitation source arrangement so that different currents simultaneously flow through the pair of excitation terminals of each winding of a coil of a particular processor, the exterior and interior windings being about an axis of the coil, the method comprising: changing the relative angular position between the exterior and interior windings of the coil so the plasma density distribution incident on the workpiece has a predetermined desired relationship; the position changing step including turning the exterior and interior windings of the coil relative to each other about an axis; the exterior and interior windings being turned relative to each other to assist in controlling azimuthal electric field distribution and plasma

density distribution of the processor; the method being performed on several different processors of the same type having different azimuthal electric field and plasma density distributions from processor to processor, the exterior and interior windings of each particular processor being turned relative to each other until tests indicate optimum uniform plasma distribution is achieved in each processor.

37. The method of claim 36 wherein the windings of the coil of each processor are electrically connected in parallel.

38. The method of claim 36 wherein the tests are conducted by simultaneously supplying electric current to the pair of excitation terminals of each winding of the coil of a particular processor.

39. A method of controlling the plasma flux distribution on a workpiece of an inductive plasma processor including a plasma excitation coil having plural electrically connected windings, each of the windings having a pair of excitation terminals, the windings being adapted to be driven by an excitation source arrangement so that different currents simultaneously flow through the pair of excitation terminals of each winding, the exterior and interior windings being about an axis of the coil, the method comprising: changing the relative position between the exterior and interior windings of the coil so the plasma density incident on the workpiece has a predetermined desired relationship; the position changing step including moving the exterior and interior

windings of the coil relative to each; the exterior and interior windings being moved relative to each other to assist in controlling electric field distribution and plasma density distribution of the processor; the method being performed on several different processors of the same type having different electric field and plasma density distributions from processor to processor, the exterior and interior windings of each particular processor being moved relative to each other until tests indicate optimum uniform plasma distribution is achieved in each processor.

40. The method of claim 39 wherein the windings of the coil of each processor are electrically connected in parallel.

41. The method of claim 39 wherein the tests are conducted by simultaneously supplying electric current to the pair of excitation terminals of each winding of the coil of a particular processor.

IX. Evidence Appendix

None.

X. Related Proceedings Appendix

None.